

SHARING IP NETWORK RESOURCES

ABSTRACT OF THE DISCLOSURE

A system and method for sharing access to an internet protocol (IP) network among multiple internet service providers (ISPs) uses multiprotocol label switching (MPLS). End-users are coupled to a broadband customer access network. Each end-user is also associated with at least one of the ISPs. An aggregation router interfaces the customer access network with a network backbone. The network backbone includes a border router for interfacing between the network backbone and the network of an ISP. When the border router is activated, it creates a forwarding equivalency class (FEC) corresponding to the ISP. The border router stores a label for the FEC and the interface for reaching the ISP in an FEC table. The border router advertises the label binding for the FEC to all upstream nodes. An intermediate node receiving the label binding creates its own FEC table, associates a new label with the FEC, and advertises the new label binding to its upstream nodes. The aggregation router receives and builds a FEC table containing the label bindings for all ISPs reachable over the network backbone. When the aggregation router receives a data packet from an end-user, the aggregation router determines the ISP associated with the end-user, labels the data packet with the label corresponding to the FEC for that ISP, and routes the packet on the network backbone. The packet eventually reaches the border router, which pops off the label and passes the packet to the ISP.

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